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Due Date

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Document Subject:

TRANSMITTAL OF THE DRAFT CONCEPTUAL DESIGN REPORT (CDR)(FOR THE SOLAR PONDS PLUME) - JEL-180-98

KH-00003NS1A

November 10, 1998

Discussion and/or Comments:

Enclosed is the "Draft Conceptual Design Report (CDR) (for the Solar Ponds Plume)" for transmittal to DOE, EPA and CDPHE. This report presents a conceptual design for phytoremediation of the Solar Ponds Plume. The report was not finalized because the phytoremediation approach was abandoned based on the information in this document. Work on the conceptual design was also halted at this time. As such, it has not been reviewed and is intended as an information-only deliverable. Information contained in the CDR should be considered for general purposes of evaluating the phytoremediation alternative. In addition to typographical errors, discussions in the CDR concerning Applicable or Relevant and Appropriate Requirements, Preble's Meadow Jumping Mouse habitat, design objectives and considerations, elements of the conceptual design, and cost contain errors but do not diminish the usefulness of the CDR for evaluating the effectiveness of phytoremediation.

The CDR evaluates two phytoremediation approaches, a completely passive approach, and a combination of passive and active phytoremediation. Both phytoremediation approaches were abandoned because of resource requirements including insufficient space available in the North Walnut Creek drainage to effectively treat nitrates. Installation, irrigation, and operation are also more labor-intensive than was expected for a passive technology. Because the area groundwater and precipitation is insufficient to initially sustain the trees, irrigation would be required for both approaches. Irrigation would be done through a drip-type system that has relative high maintenance requirements especially for a passive system. Irrigation is required for the passive approach until the phytoremediation system is established. For the combination active/passive approach, irrigation (between 2.4 and 6.4 million gallons [MG] per year of clean water) would be required for the duration of treatment. The CDR also suggests an intensive monitoring program including plant tissue monitoring, plant biomass accumulation, soil monitoring, pore water monitoring and groundwater level monitoring.

DOCUMENT CLASSIFICATION REVIEW WAIVER PER CLASSIFICATION OFFICE

ADMIN RECORD

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The evaluation is based on an assumed Interceptor Trench flow rate of 1.05 MG/year and the average flow annual is actually about 2.4 MG/year; in 1993, it was 5.4 MG/year. Because the resources and area requirements for phytoremediation are proportional to the flow rate, there would likely be additional resource requirements to implement this technology than are described in this document.

As mentioned above, there is not sufficient space available for either approach. The passive system as designed would require about 18 acres, but only about one-third of the nitrate loading could be addressed. The passive/active system would require 61 acres which is greater than the plume extent, and the construction of additional phytoremediation areas elsewhere would result in the spread of contamination to previously uncontaminated areas. The area requirements will be even greater for the higher flow rates mentioned above. Additionally, Preble's Meadow Jumping Mouse habitat would be damaged during construction and operation of the phytoremediation area. Disruption of the habitat would not only include construction and maintenance activities but also changes to the biota that would be created by planting and supporting the trees.

Some additional problems include:

- The application of stream standards to groundwater.
- References to landfill leachate and holding pond remediation that are outside the scope of this project.
- Preble's Meadow Jumping Mouse habitat extends over a greater area than previously planned. Based on input from U.S. Fish and Wildlife Service, phytoremediation and Preble's Meadow Jumping Mouse habitat are not compatible and statements to the contrary are not correct (e.g. page 13).
- Some of the costs presented are low and not reflective of work at Rocky Flats.
- In addition, the CDR was not intended as the vehicle for evaluating uranium treatment and such discussion should be disregarded.
- The CDR assumes that treated wastewater will be available for irrigation; however, this is not consistent with the closure of RFETS and another source of water would have to be utilized.

If you have any questions concerning this information, please contact Craig Cowdery at X2055 or myself at X4385.

CDC/aw

Attachment:
As Stated

cc:
A. C. Crawford, RMRS, B116
C. D. Cowdery
RMRS Records

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